

REMARKS

Claims 1-27 and 40-45 were pending in this application. By this amendment claims 11-12, 17-21, and 41-45 have been canceled, and claims 1-10, 13-16, 22-27, and 40 have been amended. Accordingly, claims 1-10, 13-16, 22-27, 40 and 46 are currently pending. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

The present invention is directed to a display device such as a liquid crystal device. The basic feature of the present invention is that an upper portion of a contact hole is leveled by filling the contact hole with an embedded conductive layer. Typically, after forming the embedded conductive layer, an etch back or a CMP (Chemical Mechanical Polishing) is performed to provide a leveled upper surface over the contact hole. As a result, a pixel electrode formed on the embedded conductive layer has a leveled upper surface.

Claims 1-21 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Fukunaga et al. (U.S. Patent No. 5,706,064). Claims 22-27 and 40-45 stand rejected under 35 U.S.C. § 103 as allegedly unpatentable over Fukunaga et al. These rejections are respectfully traversed.

Fukunaga teaches filling a contact hole with a conductive material in a liquid crystal device. Fukunaga also appears to teach the conductive materials which are similar to the claimed conductive materials.

Applicants respectfully submit that the presently claimed invention, as recited in amended independent claims 1-6, is distinguished over that of Fukunaga in that the Applicants' claimed device has a reflective pixel electrode, while Fukunaga discloses only a transparent pixel electrode. In the case of a transmission type display using a transparent electrode, the portions where transistors and metal wirings exist block light so that a portion over these portions generally do not function as a display. Support for amended claims 1-6 can be found at least in, e.g., Example 3, page 20, line 30 through page 27, line 17..

However, in the case of a reflective type display using a reflective pixel electrode, since light does not need to transmit through a TFT substrate, all the area of the pixel electrode functions as a display in nature.

Therefore, it is more important to improve a flatness of the pixel electrode over the contact hole in a reflective type display than in a transmission type display. In other words, the

effect of the present invention is more significant in the case of a reflective type than in the case of a transmission type.

Amended claims 1, 2 and 5 further distinguishes Applicants' invention over Fukunaga et al.'s by reciting that a top surface of the embedded conductive layer is flush with a top surface of an interlayer insulating film.

Amended claims 2, 4 and 5 further distinguishes Applicants' invention over Fukunaga et al.'s by reciting an interlayer insulating film comprising an organic resin.

As stated above, it is important to improve a flatness of a pixel electrode. Although the use of an organic resin for an interlayer insulating film is not novel by itself, the combination of the embedded conductive layer and the organic resin film results in a more improved flatness and an improved display quality. Since Fukunaga does not appear to teach an organic resin for an interlayer insulating film, these claims are further distinguishable over Fukunaga.

Amended claim 5 is further amended to recite that the embedded conductive layer comprises the same material as the interlayer insulating film, which is believed to improve a reliability of the device.

Amended claim 6 is directed to the specific structure as shown in Fig. 10C, which is believed to be of a structure that is not disclosed by Fukunaga.

In view of the amendments and arguments set forth above, Applicants respectfully request the reconsideration and withdrawal of the § 102(e) rejection of claims 1-21.

With respect to the § 103 rejection of claims 22-27 and 40-45, Applicants have canceled claims 41-45. Furthermore, Applicants respectfully submit that claims 22-27 are dependent from claims 1, 2, 3, 4, 5, or 6, and claim 40 is dependent from claim 1. Hence, the arguments and amendment set forth above are also applicable to the § 103 rejection of claims 22-27 and 40-45. Accordingly, reconsideration and withdrawal of the § 103 rejection is respectfully requested.

New claim 46 recites an embodiment to which Applicants are entitled. No new matter has been added. Support for claim 46 can be found in, e.g., Example 5, page 27 through page 28, line 13.

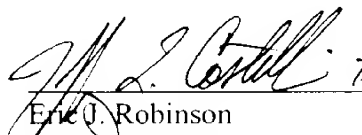
III. **CONCLUSION**

In view of the foregoing, Applicants respectfully submit that the application, including claims 1-10, 13-16, 22-27, 40 and new claim 46, is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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